

CLAIMS

What is claimed is:

- 1 1. A method, comprising:
2 determining a shelf address and/or a slot address of a board installed in a
3 card modular platform; and
4 automatically assigning a static network address for at least one network port
5 on the board based on the shelf address and/or the slot address.

- 1 2. The method of claim 1, wherein the static network address comprises an
2 Internet Protocol (IP) address.

- 1 3. The method of claim 1, wherein the network address is automatically
2 assigned by performing an algorithm that generates a unique address in response to
3 providing the shelf and/or slot addresses as inputs to the algorithm.

- 1 4. The method of claim 3, further comprising executing instructions stored on the
2 board to perform the algorithm.

- 1 5. The method of claim 1, wherein the board is a PICMG (PCI (peripheral
2 component interface) Industrial Computers Manufacturing Group)-compliant board,
3 and the shelf and the slot addresses are respectively obtained by issuing
4 *GetAddressInfo* and *GetShelfAddressInfo* IPMI (Intelligent Platform Management
5 Interface) commands.

1 6. The method of claim 1, wherein the board is made by an original equipment
2 manufacturer (OEM) and configured in accordance with the CompactPCI standard,
3 and the shelf and the slot addresses are obtained by employing OEM-specific IPMI
4 (Intelligent Platform Management Interface) commands.

1 7. The method of claim 1, wherein the network address is automatically
2 assigned by performing a query on a lookup table containing a unique network
3 address for each shelf address and slot address combination to obtain the static
4 network address.

1 8. The method of claim 7, wherein the network address is automatically
2 assigned by performing operations including:
3 configuring an address proxy server with an address lookup table containing
4 a unique network address for each shelf address and slot address combination;
5 sending the shelf and slot addresses from the board to the address proxy
6 server;
7 querying the address lookup table based on the shelf and slot addresses to
8 retrieve a corresponding network address; and
9 returning the network address to the board.

1 9. The method of claim 7, further comprising storing the lookup table on the
2 board.

1 10. A method comprising:
2 obtaining, for a network port on a board installed in a card module platform, a
3 temporary IP (Internet Protocol) address from a DHCP (Dynamic Host Configuration
4 Protocol) server;

5 determining a shelf address and a slot address of the board installed in the
6 card module platform;
7 sending the shelf and slot addresses to a boot server;
8 receiving a bootable image along with an IP address from the boot server;
9 executing the bootable image; and
10 setting a static IP address for the board in accordance with the IP address
11 that was received from the boot server.

1 11. The method of claim 10, wherein the boot server comprises a PXE (pre-boot
2 execution environment) server.

1 12. The method of claim 10, further comprising:
2 executing firmware on the board to initialize a network interface; and
3 performing a DHCP message exchange via the network interface to obtain
4 the temporary address.

1 13. The method of claim 10, further comprising returning an IP address for the
2 boot server in addition to the temporary IP address.

1 14. The method of claim 10, further comprising:
2 receiving an initial boot image from the boot server;
3 executing instructions in the initial boot image to obtain the shelf and slot
4 addresses;
5 receiving a final boot image;
6 executing and/or loading the final boot image; and
7 assigning the static IP address via the final boot image.

1 15. The method of claim 15, further comprising:
2 configuring the boot server an IP address lookup table containing a unique
3 network address for respective shelf address and slot address combinations;
4 querying the IP address lookup table based on the shelf and slot addresses to
5 retrieve the IP address to be assigned as the static IP address.

1 16. The method of claim 10, wherein data exchanged between the board and the
2 boot server is sent via the Trivial File Transfer Protocol (TFTP).

1 17. The method of claim 10, further comprising co-locating the DHCP server and
2 the boot server on the same machine.

1 18. A card modular platform board, comprising:
2 a printed circuit board (PCB) on which a plurality of components are
3 operatively coupled and linked in communication via circuitry on the PCB, including,
4 a processor;
5 memory;
6 at least one backplane connector, configured to couple to a backplane
7 installed in a card modular platform shelf having a plurality of slots;
8 a network interface coupled to a network port; and
9 at least one of a non-volatile storage device and a mass storage
10 device; and
11 machine executable instructions stored in said at least one of a non-volatile
12 storage device and a mass storage device, which when executed by the processor
13 perform operations in response to insertion of the board into a slot, comprising:
14 determining an address for the shelf and the slot; and

15 automatically assigning a static network address for the network port
16 based on the shelf address and the slot address.

1 19. The card modular platform board of claim 18, wherein the machine
2 instructions comprise firmware instructions stored in a non-volatile memory.

1 20. The card modular platform board of claim 18, wherein execution of the
2 machine instructions automatically assigns the network address by performing an
3 algorithm that generates a unique address in response to providing the shelf and slot
4 addresses as inputs to the algorithm.

1 21. The card modular platform board of claim 18, further comprising data stored
2 in said at least one of a non-volatile storage device and a mass storage device
3 comprising a lookup table containing a unique network address for respective shelf
4 address and slot address combinations, and wherein execution of the machine
5 obtains the static network address by performing a query on a lookup table using the
6 shelf and slot addresses that are determined as inputs.

1 22. A card modular platform board, comprising:
2 a printed circuit board (PCB) on which a plurality of components are
3 operatively coupled and linked in communication via circuitry on the PCB, including,
4 a processor;
5 memory;
6 at least one backplane connector, configured to couple to a backplane
7 installed in a card modular platform shelf having a plurality of slots;
8 a network interface coupled to a network port; and

9 at least one of a non-volatile storage device and a mass storage
10 device; and
11 machine executable instructions stored in said at least one of a non-volatile
12 storage device and a mass storage device, which when executed by the processor
13 perform operations in response to insertion of the board into a slot, comprising:
14 initializing the network interface;
15 performing client-side operations in a DHCP (Dynamic Host
16 Configuration Protocol) message exchange to obtain a temporary IP (Internet
17 Protocol) address from a DHCP server;
18 determining an address for the shelf and the slot;
19 sending the shelf and slot addresses to a boot server;
20 receiving a bootable image along with an IP address from the boot
21 server;
22 booting the bootable image,
23 wherein the IP address that was received from the boot server is assigned by
24 the bootable image as a static IP address for the network port.

1 23. The card modular platform board of claim 22, wherein execution of the
2 machine instructions performs further operations, including:
3 receiving an initial boot image from the boot server; and
4 executing instructions in the initial boot image to obtain the shelf and slot
5 addresses;
6 receiving a final boot image; and
7 booting the final boot image,
8 wherein the static IP address is assigned by the final boot image.

1 24. A machine-readable medium to provide instructions, which when executed by
2 a card modular platform board performs operations in response to insertion of the
3 board into a slot of a card modular platform shelf, including:
4 determining an address for the shelf and the slot; and
5 automatically assigning a static network address for the network port based
6 on the shelf address and the slot address.

1 25. The machine-readable medium of claim 24, wherein execution of the machine
2 instructions automatically assigns the network address by performing an algorithm
3 that generates a unique address in response to providing the shelf and slot
4 addresses as inputs to the algorithm.

1 26. The machine-readable medium of claim 24, further including data comprising
2 a lookup table containing a unique network address for respective shelf address and
3 slot address combinations, and wherein execution of the instructions obtains the
4 static network address by performing a query on a lookup table using the shelf and
5 slot addresses that are determined as inputs.

1 27. The machine-readable medium of claim 24, wherein the medium comprises a
2 firmware storage device, and the instructions comprise firmware.

1 28. The machine-readable medium of claim 24, wherein the card modular
2 platform board is a PICMG (PCI Industrial Computers Manufacturing Group)-
3 compliant board, and the shelf and the slot addresses are respectively obtained by
4 issuing *GetAddressInfo* and *GetShelfAddressInfo* IPMI (Intelligent Platform
5 Management Interface) commands via execution of the instructions.